

IMAGING SENSOR SYSTEM WITH STAGGERED
ARRANGEMENT OF IMAGING DETECTOR SUBELEMENTS, AND
METHOD FOR LOCATING A POSITION OF A FEATURE IN A SCENE

ABSTRACT OF THE DISCLOSURE

5 An imaging sensor system includes an optics system that images a point
feature of a scene at an image plane with a blur-circle image having a blur
diameter, and a detector array at the image plane. Special array patterns and
signal detector logic are used to improve the accuracy of the determination of the
object location. In one form, the detector array is a one-dimensional detector
10 array comprising a plurality of detector subelements each having a width of from
about 1/2 to about 5 blur diameters, and a length of n blur diameters. Each
detector subelement overlaps each of two adjacent detector subelements along
their lengths. An overlap of each of the two adjacent detector subelements is m
blur diameters, and a center-to-center spacing of each of the two adjacent detector
15 subelements is n_0 blur diameters. The value of n is equal to about $3m$, and the
value of m is equal to about $n_0/2$. In another form, the detector is a two-
dimensional detector array of detector subelements. The detector subelements are
sized and staggered such that an area of the blur-circle image may not
simultaneously be split equally among four detector subelements.